CALCIUM AND FLUORIDE CONTENT ON ENAMEL SURFACE OF PRIMARY TEETH AFTER SODIUM FLUORIDE 5% + TRICALCIUM PHOSPHATE APPLICATION

Abstract

Background: Dental caries occur if there is an imbalance between the process of demineralization and remineralization. The demineralization process can cause a release of important ions within the tooth such as calcium and fluoride. Prevention of caries should be done at early age. The use of sodium fluoride 5% + tricalcium phosphate can accelerate the transformation of hydroksiapatite into fluoroapatite, thus decreasing the demineralization process and increasing the remineralization process. **Purpose:** This research was aimed to determine the content of calcium and fluoride after application of sodium fluoride 5% + tricalcium phosphate on the enamel of primary teeth . **Method:** Eight samples of mandibular primary incisors which were divided into 2 groups: first group without application of sodium fluoride 5% + tricalcium phosphate and second group with application of sodium fluoride 5% + tricalcium phosphate The teeth samples being submerged into artificial saliva for 24 hours and acetic acid 1M pH 4.00 for 72 hours. The content of fluoride and calcium was measured using SEM-EDX before and after submersion. **Results:** The calcium content of the group that was given application of sodium fluoride 5% + tricalcium phosphate tend to decrease, as much as 4.01%, While the fluoride content group that was given application of sodium fluoride 5% + tricalcium phosphate tend to increase, as much as 4.64%. **Conclusion:** This study showed that fluoride content will increase while calcium content will decrease when application of sodium fluoride 5% + tricalcium phosphate was done.

Kata Kunci: Calcium content, fluoride content, sodium fluoride, tricalcium phosphate, enamel, primary teeth

KADAR CALCIUM DAN FLUORIDE PADA PERMUKAAN ENAMEL GIGI SULUNG SESUDAH PENGULASAN SODIUM FLUORIDE 5% + TRICALCIUM PHOSPHATE

ABSTRAK

Latar belakang: Karies dapat terjadi karena adanya ketidakseimbangan demineralisasi dan remineralisasi. Proses demineralisasi menyebabkan terlepasnya ion penting dalam gigi seperti calcium dan fluoride. Pencegahan karies perlu dilakukan sejak dini. Penggunaan bahan sodium fluoride 5% + tricalcium phosphate dapat mempercepat perubahan hydroksiapatite menjadi fluoroapatite sehingga menghambat terjadinya demineralisasi dan meningkatkan remineralisasi. **Tujuan:** Penelitian ini bertujuan untuk mengukur kadar calcium dan fluoride setelah pengulasan sodium fluoride 5% + tricalcium phosphate pada permukaan enamel gigi sulung. **Metode:** Penelitian ini menggunakan sampel sebanyak 8 gigi insisif sulung bawah yang di bagi menjadi 2 kelompok yaitu kelompok tanpa pengulasan sodium fluoride 5% + tricalcium phosphate dan kelompok dengan pengulasan sodium fluoride 5% + tricalcium phosphate. Pengukuran kadar calcium dan fluoride dilakukan sebanyak 2 kali yaitu sebelum dan sesudah perendaman saliva buatan selama 24 jam dan asam asetat 1M pH 4,00 selama 72 jam. Pengukuran kadar fluoride dan calcium menggunakan SEM-EDX. **Hasil:** Pada kelompok yang diberi pengulasan sodium fluoride 5% + tricalcium phosphate, kadar calcium yang dimiliki cenderung mengalami penurunan lebih sedikit dibandingkan dengan kelompok tanpa pengulasan yaitu 4,01%. Pada pengukuran kadar fluoride, kelompok yang diberi pengulasan sodium fluoride 5% + tricalcium phosphate cenderung mengalami peningkatan sebesar 4,64%. **Kesimpulan:** Penelitian ini menunjukkan bahwa kadar fluoride yang diulas sodium fluoride 5% + tricalcium phosphate cenderung mengalami peningkatan dan pada kadar calcium cenderung mengalami penurunan.

Kata Kunci: Kadar calcium, Kadar fluoride, sodium fluoride, tricalcium phosphate, enamel, gigi sulung